

ABSTRACT

A dry etching method wherein a resist film is irradiated with radiation having a wavelength of not more than 195 nm to form a resist pattern having a minimum line width of not more than 200 nm, and the substrate having the resist pattern formed thereon is subjected to dry etching using a fluorine-containing compound having 4 to 6 carbon atoms and at least one unsaturated bond as an etching gas. As the fluorine-containing compound, perfuloro-2-pentyne, perfuloro-2-butyne, nonafluoro-2-pentene and perfluoro-2-pentene are preferably used. Perfuloro-2-pentyne is produced by a process wherein a 1,1,1-trihalo-2,2,2-trifluoroethane is allowed to react with pentafluoropropionaldehyde to give a 2-halo-1,1,1,4,4,5,5,5-octafluoro-2-pentene, and the thus-produced halo-octafluoro-2-pentene is dehydrohalogenated.